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**Practicing Biology – Properties of Water Worksheet**

Mrs. Krouse, AP Biology

Life as we know it could not exist without water. All the chemical reactions of life occur in aqueous solution. Water molecules are polar and are capable of forming hydrogen bonds with other polar or charged molecules. As a result, water has the following properties:

A. H2O molecules are cohesive; they form hydrogen bonds with each other.

B. H2O molecules are adhesive; they form hydrogen bonds with other polar molecules and surfaces.

C. Water has a high specific heat / heat capacity.

D. Water has a high heat of vaporization.

E. Water’s greatest density occurs at 4°C (i.e. when water is in its liquid form).

Explain how these properties of water are related to the phenomena described in parts 1-8 below. **More than one property may be used to explain a given phenomenon.** We WILL go over this in class, so just give it your best shot!

1. During the winter, air temperatures in the northern United States can remain below 0°C for months; however, the fish and other animals living in the lakes survive.

2. Many substances (ex: salt) dissolve quickly in water.

3. When you pour water into a 25-mL graduated cylinder, a meniscus (dip) forms at the top of the water column.

4. Sweating and the evaporation of sweat from the body surface help reduce a human’s body temperature.

5. A bottle contains a liquid mixture of equal parts water and vegetable oil. You shake the bottle vigorously and then set it on the table. Very quickly, the mixture separates into two separate layers of oil and water.

6. Water drops that fall on a surface tend to form rounded drops or beads.

7. Water drops that fall on your car tend to bead or round up more after you wax the car than before you waxed it.

8. If you touch the edge of a paper towel to a drop of water, the water will move up into (or be absorbed by) the towel.

*(Thank you to Practicing Biology, a publication by Campbell / Reece)*